AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A demodulation apparatus for receiving signals by an adaptive modulation and coding method, and demodulating the signals, in an OFDMA based packet communication system, comprising:

a QAM demapper for performing a QAM (Quadrature Amplitude Modulation) demapping process on the received signals by a modulation method using a maximum modulation ratio, and outputting first data which have a number of bits corresponding to the modulation method using the maximum modulation ratio until modulation methods for each of the sub-channels are analyzed, and performing the QAM demapping process on the received signals by the modulation methods for each of the sub-channels and outputting second data which have a number of bits corresponding to the modulation methods for each of the sub-channels, when the modulation methods for each of the sub-channels are analyzed;

a slot buffer for storing the first data and the second data outputted from the QAM demapper for each slot; and

a channel decoder for decoding the data stored in the slot buffer, analyzing modulation methods for each of the sub-channels transferring the analyzed modulation methods to the QAM demapper, reading only valid data corresponding to the number of bits for the analyzed modulation methods from among all bits of the first data, demodulating the valid data, once the modulation methods for each of the sub-channels are analyzed by the channel decoder, ~~and the second data,~~ reading all bits of the second data, demodulating the ~~valid~~ read bits of the second data, and outputting the demodulated data.

2. (Original) The demodulation apparatus in the OFDMA based packet communication system of claim 1, wherein the channel decoder controls read enable signals for controlling the data output stored in the slot buffer, and reads the valid data from the slot buffer.

3. (Original) The demodulation apparatus in the OFDMA based packet communication

system of claim 1, wherein the channel decoder selectively outputs addresses being accessed to only valid data from among the data stored in the slot buffer, and reads the valid data from the slot buffer.

4. (Previously Presented) The demodulation apparatus in the OFDMA based packet communication system of claim 1, wherein the slot buffer comprises:

a first slot buffer for storing the first data outputted from the QAM demapper until the modulation methods for each of the sub-channels of the received signals are analyzed by the channel decoder; and

a second slot buffer for storing the second data outputted from the QAM demapper, once the modulation methods for each of the sub-channels of the received signals are analyzed by the channel decoder.

5. (Previously Presented) The demodulation apparatus in the OFDMA based packet communication system of claim 4, wherein the first slot buffer stores the first data demapped by the modulation method using the maximum modulation ratio in the QAM demapper; and

the second slot buffer stores the second data demapped by the modulation methods analyzed for each of the sub-channels in the QAM demapper.

6. (Previously Presented) The demodulation apparatus in the OFDMA based packet communication system of claim 1, wherein the channel decoder reads the MAP information in the former part of a frame among the symbol data stored in the slot buffer, and analyzes the modulation methods for each of the sub-channels.

7. (Previously Presented) The demodulation apparatus in the OFDMA based packet communication system of claim 1, wherein the QAM demapper performs a demapping process on the received signals by the modulation methods for each of the sub-channels, and stores the output data in the slot buffer, once the modulation methods for each of the sub-channels are analyzed by the channel decoder.

8. (Previously Presented) The demodulation apparatus in the OFDMA based packet communication system of claim 1, wherein in the case data are demodulated by the modulation method using the maximum modulation ratio, a constellation for part of the data is identical with a constellation for the data demodulated by the modulation methods for each sub-channels.

9. (Previously Presented) The demodulation apparatus in the OFDMA based packet communication system of claim 8, wherein the demodulation apparatus further comprises:

an FFT (Fast Fourier Transform) unit for performing FFT on the received signals and outputting the signals;

a re-ordering buffer for re-ordering the signals outputted from the FFT unit and storing the signals; an equalizer for estimating channels using the signals stored in the re-ordering buffer and performing equalization of the signals, and outputting the signals to the QAM demapper.

10. (Previously Presented) The demodulation apparatus in the OFDMA based packet communication system of claim 1, wherein in the case the modulation method using the maximum modulation ratio is 64 QAM, and a data unit for storing in the slot buffer is 6 bits of data, the valid data by the 16 QAM modulation method are former 4 bits of data from among the 6 bits of data.

11. (Previously Presented) The demodulation apparatus in the OFDMA based packet communication system of claim 1, wherein in the case the modulation method using the maximum modulation ratio is 64 QAM, and a data unit for storing in the slot buffer is 6 bits of data, the valid data by the QPSK modulation method are 2 bits of data in front of the 6 bits of data.

12. (Currently Amended) A demodulation method for receiving signals by an adaptive modulation and coding method and demodulating the signals, in an OFDMA based packet communication system, the method comprising the steps ~~stages~~ of:

a) performing a demapping process on the received signals by a modulation method using a

maximum modulation ratio and storing first data which have a number of bits corresponding to the modulation method using the maximum modulation ratio;

b) decoding the first data and analyzing the modulation methods for each of the sub-channels; and

c) performing a demapping process on the received signals by the analyzed modulation methods for each of the sub-channels outputting second data which have a number of bits corresponding to the modulation methods for each of the sub-channels, and demodulating the first data and the second data,

wherein the first data are stored in step a) until the modulation methods for each of the sub-channels are analyzed[[;]], only valid data corresponding to the number of bits for the analyzed modulation methods from among all bits of the first data, once the modulation methods for each of the sub-channels are analyzed, ~~and the second data are read;~~ all bits of the second data are read, and the valid data and the read bits of the second data are demodulated.

13. (Cancelled)